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SEQ ID NO. 6.

RESULT 2
US-08-968-685A-9
; Sequence 9, Application US/08968685A
; Patent No. 6214981
; GENERAL INFORMATION:
; APPLICANT: TUCKER, KENNETH
; APPLICANT: PLOSILA, LAURA
; TITLE OF INVENTION: MORAXELLA CATARRHALIS OUTER MEMBRANE
; TITLE OF INVENTION: PROTEIN-106 POLYPEPTIDE, GENE SEQUENCE AND USES THEREOF
; NUMBER OF SEQUENCES: 21
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: PENNIE & EDMONDS LLP
; STREET: 1155 Avenue of the Americas
; CITY: New York
; STATE: New York
; COUNTRY: USA
; ZIP: 10036-2711
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/968,685A
; FILING DATE: No. 6214981ember 12, 1997
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:

NAME: Baldwin, Geraldine F.
REGISTRATION NUMBER: 31,232
REFERENCE/DOCKET NUMBER: 7969-060
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-8854
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 9542 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA
US-08-968-685A-9

Qy	3799	gtgctaagcgcaggttttaacttgcgaagcaatggtgaacggttgactttgtctccact	3855
Db	4244	GTGCTAAGCGCAGGCTTTAACTTGCNAGGCAATGGTGAAAGCGGTGACTTTGTCTCCACT	4303
Qy	3859	tatgacacgcgtcaactttgcgatggcgaatgcacaccgcgttaagtgacacctatgatgc	3918
Db	4304	TATGACACATGTCAACTTTGCCGATGGCAATGCCACCACCGCTAAGTGACCTATGATGAC	4363
Qy	3919	acaagcaaaacagtaaaagtggctctatgatgtcaatggatgatacaaccattgaagtt	3978
Db	4364	ACAAGCAAAACAGTAAAGTGGCTATGATGTCTAATGTGGATGATACAACCATTAAGTT	4423
Qy	3979	aaagataaaaaaacttggcgtataaaacacacacattgaccagtgactggcacagtgcta	4038
Db	4424	AAAGATAAAAAAActTTGGCGTAAAAAACACCACATATGACCAGTACTTGGCACAGGTGCTAAT	4483
Qy	4039	aaatttgccttaagcaaatcaagctactcggatcggatcggcttgtcaaggccaatgatatcg	4098
Db	4484	AAATTTGCCCTTAAGCAATCAAGCTACTTGGCGATGGCTTGTGTAAGGCCAGTGATATCGTT	4543
Qy	4099	gtcattctaaacaccttatctggcgacatccaaactgccaaaggggcaagcccaagcgaac	4158
Db	4544	GCTCATCTAAACACCTTATCTGGCGACATCCAAACTGCCAAGGGCAAGCCAAAGCGAAC	4603
Qy	4159	aactcagcagggctatgtgtagtctgtagtgcaataagtgatctatgacagtaaccgataac	4218
Db	4604	AGCTCAGCAGGCTATGTGGATGCTGATGGCAATAAAGGTCATCTATGACAGTACCAGTAAC	4663
Qy	4219	aagttactatcaagccaaatgatggcacagttgatataaaacccaagaagtggccaagac	4278
Db	4664	AAGTACTATTCAAGCCAAATATGATGGCAGCTTGATTAACCAAGAAGTTGGCAAGAC	4723
Qy	4279	aaacttgctgcgcgaagcccaaacccacagatggcacattggtctcaaatgaatgtcaaatca	4338
Db	4724	AAACTGGTGCGCCAAGCCCAAAACCCAGATGGCACANTGGCTCAAAATGAATGTCAANTCA	4783
Qy	4339	gtcattatacaagaagaactaaatgatgtgccaatataaaagcaaggtcfaatgaagacaac	4398
Db	4784	GTCAATTAAACAAAGACAAGTAAATGATGCCAATAAAAAGCAAGGCATCAATGAAGACAAC	4843
Qy	4399	gcctttgtttaaggacttgaaaaagcgccttcttgatacaaaaacccaacaaacgcgcagta	4458
Db	4844	GCCTTTGTTTAAAGGACTTTGAAAAGCCGCTTCTGATTAACAAAACCAAAAACGCCGACGTA	4903
Qy	4459	actgtgggtgatttaaatggcgttgccaaacacgcctgacctttgcaggggatacagcc	4518
Db	4904	ACTGTGGGTGATTTAAATGCCGTTGCCCAACACCCGTGACCTTTGCAGGGGATACAGGC	4963
Qy	4519	acaacgctataaaactgggcgagactttgaccattcaagtggtggcaaacagacaccaat	4578
Db	4964	ACAACGGCTAAAAACTGGCGAGACTTTGACCATCAAAAGTGGCAAAACAGACACCAAT	5023
Qy	4579	aagctaacccgataatacatcggttggttagcaggtactgatgggttcactgttcaaacctt	4638
Db	5024	AAGCTAACCGATAATAACTCGGTGTGGTAGCAGGTACTGATGGCTTCATGTGTCAAACTT	5083
Qy	4639	gccaagacctaaccaattctlaacagcgttaatgcaggtggccacaaaatttgatgacaaa	4698
Db	5084	GCCAAAGACCTTAACCAATCTTAAACAGCGTTAATCGAGTGGTACCAAAAATTGATGACAAA	5143
Qy	4699	ggcgtgtctttttagactcaagcgggtcaagccaaagcaaacccctgtgctcaagtgc	4758
Db	5144	GGCGTGTCTTTTGTAGACTCAAGCGGTCAAGCCAAACCAACACCCCTGTGCTTAAGTGCC	5203
Qy	4759	aatgggctggacctgggtggcgaaggtcatcagtaatgtgggcaaaagccaaagaataac	4818
Db	5204	AATGGGCTGGACCTGGGTGGCAAGGTCATCAGCAATCTGGGCAAGAGCACAAAGAAGACACC	5263
Qy	4819	gacgtgtccaatgtatacaacagtaaacgaaglacgcgaacttgttgaggcttggtaatgct	4878
Db	5264	GACGCTGCCAATGTACAACAGTTAAACGAAGTACGCAACTTTGTGGGTCTTGTAATGCT	5323

Db 6404 ||||| CCACAAGCCTACATTCTGGCAGATCCATGGTTACCGGGGGTATTGCCACCCACAACGGT 6463
Qy 6019 caaggtgcggtggcagtgaggactgtcgaagctgtcggataatggtcaatgggtatttaaa 6078
Db 6464 ||||| CAAGGTGCGGTGGCAGTGGGACTGTCTGAAGCTGTCTGGATAATGGTCAATGGGTATTTAAA 6523
Qy 6079 atcaatgggttcagccgatacccaaggccatgtaggggaggcagttggtgcaggttttcac 6138
Db 6524 ||||| ATCAATGGTTCAGCCGATACCAAGGCCATGTAGGGGCGGCAGTTGCTGCAGGTTTTCAC 6583
Qy 6139 ||||| ttt 6141
Db 6584 ||||| TTT 6586

A genomic DNA fragment (T38740) of *Moraxella catarrhalis* otitis media strain 4223 includes the coding region for a 1992-amino acid protein (W04505) identified as an approx. 200 kDa outer membrane protein (OMP). The DNA was isolated from a strain 4223 genomic library in phage lambda EMBL3 by screening with an anti-200 kDa protein guinea pig antiserum. The gene can be used for the recombinant expression of the OMP (for use in vaccines), for the prepn. of hybridisation probes, or may be incorporated into a live vector for use in direct immunisation.

Sequence 6971 BP; 2265 A; 1553 C; 1533 G; 1620 T; 0 other:

Query Match	99.8%;	Score 6130;	DB 17;	Length 6971;
Best Local Similarity	100.0%;	Pred. No. 0;		
Matches 614;	Conservative	0;	Mismatches	0;
			Indels	1;
			Gaps	1;
QY	1	atgaatcacatctataaagtcattttaacaaagccacacaggcacatttatggcagtgcca	60	
DB	540	atgaatcacatctataaagtcattttaacaaagccacacaggcacatttatggcagtgcca	599	
QY	61	gagtaacgcaaatcccacagcac-gggggggggtagctgtctacagggcaagttggcag	119	
DB	600	gagtaacgcaaatcccacagcac-gggggggggtagctgtctacagggcaagttggcag	659	
QY	120	tgtatgcacttgagctttggccgtattgccgcgtcgctgcctgcgtatgcgtgccaac	179	
DB	660	tgtatgcacttgagctttggccgtattgccgcgtcgctgcctgcgtatgcgtgccaac	719	
QY	180	gctcagtggcagtgcttatgctcaaaaaaagatacacaacatcgcatttggtagaaca	239	
DB	720	gctcagtggcagtgcttatgctcaaaaaaagatacacaacatcgcatttggtagaaca	779	
QY	240	aaaccagccaagacgtcagcagcagtcgcaagggcgagcgtgatcgagccattgctattgg	299	
DB	780	aaaccagccaagacgtcagcagcagtcgcaagggcgagcgtgatcgagccattgctattgg	839	
QY	300	tgaatatgtcaagcacagggcggtcnaagccatgccatcggtagtaataaaactgt	359	
DB	840	tgaatatgtcaagcacagggcggtcnaagccatgccatcggtagtaataaaactgt	899	
QY	360	caatgggaagcagttggataagataggtaccagatctacgggtcaagatgccatgccat	419	
DB	900	caatgggaagcagttggataagataggtaccagatctacgggtcaagatgccatgccat	959	
QY	420	cgggtggtgatataaagcgtagtggtgatgctcgattgcccattcggtagtcgactttaca	479	
DB	960	cgggtggtgatataaagcgtagtggtgatgctcgattgcccattcggtagtcgactttaca	1019	
QY	480	tttgcttgatcagcatggttaactcaaatcccgaaaggtactctgattcaagcattctat	539	
DB	1020	tttgcttgatcagcatggttaactcaaatcccgaaaggtactctgattcaagcattctat	1079	
QY	540	taacggccatgcagttataaagaataacgaagctcaaaagataaagatgaataaataag	599	
DB	1080	taacggccatgcagttataaagaataacgaagctcaaaagataaagatgaataaataag	1139	
QY	600	acgcacaacccgaagcggaacgcagtcactgcagttggggagccatgcatatgcacaggg	659	
DB	1140	acgcacaacccgaagcggaacgcagtcactgcagttggggagccatgcatatgcacaggg	1199	
QY	660	tcattttccaacgctttgggtacacgggcaacagcgtaaaagtgccattctctggcagt	719	
DB	1200	tcattttccaacgctttgggtacacgggcaacagcgtaaaagtgccattctctggcagt	1259	
QY	720	gggtcttgccgcacacagcgaggccaattacaatcgctattgggtctgtagcaaatc	779	
DB	1260	gggtcttgccgcacacagcgaggccaattacaatcgctattgggtctgtagcaaatc	1319	
QY	780	tagtctggtgggagcgtatgcccttgggtcgaggtactgctcagctacagggcagtat	839	

560 ID No. 6

Accession	Species	Strain	Location/Qualifiers	Key	Location/Qualifiers	Key
AAAT38740	standard; DNA; 6971 BP.					
AAAT38740;						
25-JAN-1997 (first entry)						
Moraxella outer membrane protein gene.						
Outer membrane protein; OMP; immunogen; vaccine; otitis media; diagnosis; ss.						
Mycobacterium catarrhalis strain 4223.						
WO9634960-Al.						
07-NOV-1996.						
29-APR-1996;						
96WO-CA00264.						
26-MAR-1996;						
96US-0621944.						
01-MAY-1995;						
95US-0431718.						
07-JUN-1995;						
95US-0478370.						
(CONN-) CONNAUGHT LAB LTD.						
Chong P, Harkness RE, Klein MH, Loosmore SM, Sasaki K;						
WPI; 1996-506162/50.						
P-PSDB; AAW04505.						
Moraxella outer membrane protein - useful as immunogen in protective vaccine and for diagnosis						

Db	1320	tagctcgttgaggagcagatagcccttggtgcagggtactcgtgctcagctacagggcagtat	1379
Qy	840	tgccctaggtcaaggtctctgttcactcagagtgataataatcttagaccggccctatac	899
Db	1380	tgccctaggtcaaggtctctgttcactcagagtgataataatcttagaccggccctatac	1439
Qy	900	accaaataccagggcactagaccccaagtttcaagccaccaataataacgaagcgggtcc	959
Db	1440	accaaataccagggcactagaccccaagtttcaagccaccaataataacgaagcgggtcc	1499
Qy	960	actttccattgggtagtaactctataaacgttaaaactcgtcgtgcaggtgttaa	1019
Db	1500	actttccattgggtagtaactctataaacgttaaaactcgtcgtgcaggtgttaa	1559
Qy	1020	taaaacgatgcggtcaattggtgcacagctagaaagcgggtggaagtgggtcaagagcg	1079
Db	1560	taaaacgatgcggtcaattggtgcacagctagaaagcgggtggaagtgggtcaagagcg	1619
Qy	1080	tagaattactttcaggggtgatgatacaagtagctacgtacgtataaaataggtttggataa	1139
Db	1620	tagaattactttcaggggtgatgatacaagtagctacgtacgtataaaataggtttggataa	1679
Qy	1140	tttaactattaaaggtggtgcagagaccacgcattaaaccgtataataatcgtgtggt	1199
Db	1680	tttaactattaaaggtggtgcagagaccacgcattaaaccgtataataatcgtgtggt	1739
Qy	1200	aaaagaggctgataatagttggtctgaaagttaaacttgcataaaactttaaacaactctac	1259
Db	1740	aaaagaggctgataatagttggtctgaaagttaaacttgcataaaactttaaacaactctac	1799
Qy	1260	tgagggtgaatacaactacattaaatgcccacaaccacagttaaaggtaggtagtagtagtag	1319
Db	1800	tgagggtgaatacaactacattaaatgcccacaaccacagttaaaggtaggtagtagtagtag	1859
Qy	1320	tactacagctgaattattgagtgatagtttaacctttaccagcccaatacaggcagtgca	1379
Db	1860	tactacagctgaattattgagtgatagtttaacctttaccagcccaatacaggcagtgca	1919
Qy	1380	asgcacaagcaaaacccgtctatggttcgttaatgggggtgaagtttactaataatgcagaaac	1439
Db	1920	asgcacaagcaaaacccgtctatggttcgttaatgggggtgaagtttactaataatgcagaaac	1979
Qy	1440	aaacagcagcaatcgggcactactcgtattaccagagataaaaattggcttgcgcagatgg	1499
Db	1980	aaacagcagcaatcgggcactactcgtattaccagagataaaaattggcttgcgcagatgg	2039
Qy	1500	tgatgttgatgaaaaaacaagcaccaatttggtataaaaaaacaacttaagtggttagtgt	1559
Db	2040	tgatgttgatgaaaaaacaagcaccaatttggtataaaaaaacaacttaagtggttagtgt	2099
Qy	1560	tgcaattaccatagacaatggcattgtatgcaggttaataaaaaagatcagtaactctgcac	1619
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Qy	1620	aggttagcagtgctaacgatgcggtttaccatcgcagacgtcaaaagccgcagactacttt	1679
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Qy	1680	aaaacgagggcgtggccatcagtgctcacacactactgaaatcactcagttgagtctaaagatgg	1739
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Qy	1740	caatgttacgcgcccaacttacacaatttggcgtgaaacaccccgagcttaacagtgatgg	1799
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Qy	1800	cactagtgataaaatttagtgttaaggttagtgtgtagcagaacatagcttagttaccgcga	1859
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Qy	1860	acatttggcagcgtctataaataagtcgaacggtcgaacggtcgaacggtcgaacggtcgaacggt	1919
Db	2400	acatttggcagcgtctataaataagtcgaacggtcgaacggtcgaacggtcgaacggtcgaacggt	2459

QY	1920	taccggttaaagaagaacgacgatgatgacgccaacgcctatcacogtggctaaagatacagc	1979
DB	2460	taccggttaaagaagaacgacgatgatgacgccaacgcctatcacogtggctaaagatacagc	
QY	1980	aaaaaatgcggcgagtcagctcgtttaaactcaaaggtaaaaaacggtctaaacggttcgc	2039
DB	2520	aaaaaatgcggcgagtcagctcgtttaaactcaaaggtaaaaaacggtctaaacggttcgc	
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QY	2100	caaaagcaccttaaacacacgatggcttgactgttaaagatcaccaagacaaataccaagt	2159
DB	2640	caaaagcaccttaaacacacgatggcttgactgttaaagatcaccaagacaaataccaagt	
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DB	3180	ggatgatacaaccattctataacaggcactgatgacaataaaaaacttggcgtcaaaaac	
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Thu Sep 13 14:18:39 2001

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Qy 6060 tgggtcaatgggtatttataaatcaatggttcagccgatacccaaggccatgtagggggcgc 6119
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Qy 6120 agttggtgcaggtttttcacttt 6141
Db 6660 agttggtgcaggtttttcacttt 6681